

Date Submitted: 04/23/20 3:05 pm

Viewing: **CVEGBS : Civil Engineering, Bachelor of Science in Civil Engineering**

Last approved: 05/21/19 10:56 am

Last edit: 08/25/20 9:53 am

Changes proposed by: kdhall

Catalog Pages Using
this Program

[Civil Engineering B.S.C.E.](#)

[Civil Engineering_\(CVEG\)](#)

Submitter: User ID: **kdhall crsteaf1** Phone:

479-640-2525 ~~575-6731~~

Program Status Active

Academic Level Undergraduate

Type of proposal Major/Field of Study

Select a reason for this modification

Making Minor Changes to an Existing Degree (e.g. changing 15 or fewer hours, changing admission/graduation requirements, adding/changing Focused Study or Track)

Are you adding a concentration?

No

Are you adding or modifying a track?

No

Are you adding or modifying a focused study?

No

Effective Catalog Year Fall 2021

College/School Code

College of Engineering (ENGR)

In Workflow

1. ENGR Dean Initial
2. Director of Program Assessment and Review
3. Registrar Initial
4. Institutional Research
5. CVEG Chair
6. ENGR Curriculum Committee
7. ENGR Faculty
8. ARSC Dean
9. ENGR Dean
10. Global Campus
11. Provost Review
12. University Course and Program Committee
13. Faculty Senate
14. Provost Final
15. Provost's Office-- Notification of Approval
16. Registrar Final
17. Catalog Editor Final

Approval Path

1. 04/23/20 12:47 pm
Norman Dennis (ndennis): Rollback to Initiator
2. 04/24/20 10:02 am
Norman Dennis (ndennis): Approved for ENGR Dean Initial

Department Code

Department of Civil Engineering (CVEG)

Program Code

CVEGBS

Degree

Bachelor of Science in Civil Engineering

CIP Code

3. 05/08/20 1:51 pm
Alice Griffin
(agriffin): Approved
for Director of
Program
Assessment and
Review
4. 07/22/20 12:34 pm
Lisa Kulczak
(lkulcza): Approved
for Registrar Initial
5. 07/22/20 1:04 pm
Gary Gunderman
(ggunderm):
Approved for
Institutional
Research
6. 07/22/20 1:13 pm
Micah Hale (micah):
Approved for CVEG
Chair
7. 08/24/20 3:08 pm
Manuel Rossetti
(rossetti): Rollback
to Director of
Program
Assessment and
Review for ENGR
Curriculum
Committee
8. 08/25/20 10:04 am
Alice Griffin
(agriffin): Approved
for Director of
Program
Assessment and
Review
9. 09/02/20 9:51 am
Lisa Kulczak

- (lkulcza): Approved for Registrar Initial
10. 09/02/20 10:04 am
Gary Gunderman (ggunderm): Approved for Institutional Research
11. 09/02/20 10:21 am
Micah Hale (micah): Approved for CVEG Chair
12. 09/11/20 1:04 pm
Manuel Rossetti (rossetti): Approved for ENGR Curriculum Committee
13. 09/11/20 1:20 pm
Norman Dennis (ndennis): Approved for ENGR Faculty
14. 09/11/20 5:04 pm
Jeannie Hulen (jhulen): Approved for ARSC Dean
15. 09/11/20 7:11 pm
Norman Dennis (ndennis): Approved for ENGR Dean
16. 09/14/20 10:40 am
Suzanne Kenner (skenner): Approved for Global Campus
17. 09/17/20 12:59 pm
Terry Martin (tmartin): Approved for Provost Review
18. 09/25/20 3:58 pm
Myrlinda Soedjede

(myrlinda):
Approved for
University Course
and Program
Committee

19. 10/15/20 2:15 pm

Stephen Caldwell
(stephenc):
Approved for
Faculty Senate

History

1. Aug 15, 2014 by
Leepfrog
Administrator
(clhelp)
2. Mar 23, 2015 by
Charlie Alison
(calison)
3. Aug 18, 2015 by Lisa
Kulczak (lkulcza)
4. May 9, 2016 by
Kevin Hall (kdhall)
5. Jul 27, 2016 by
Charlie Alison
(calison)
6. Apr 24, 2017 by
Kevin Hall (kdhall)
7. Jun 12, 2017 by
Charlie Alison
(calison)
8. May 21, 2019 by
Rodney Williams
(rdw)

14.0801 - Civil Engineering, General.

Program Title

Civil Engineering, Bachelor of Science in Civil Engineering

Program Delivery

Method

On Campus

Is this program interdisciplinary?

No

Does this proposal impact any courses from another College/School?

Yes

College(s)/School(s)

College/School Name

Fulbright College of Arts and Sciences (ARSC)

What are the total
hours needed to
complete the
program?

128

Program Requirements and Description

Requirements

Elective Courses

Students must select three 3-hour civil engineering elective courses in conference with their adviser. Normally, the civil engineering courses are selected from among the 4000-level elective CVEG courses. Exceptional students may be allowed to choose from the 5000 (graduate-level) course **series**.

~~series:~~

Students must also choose one elective course in science, engineering, technology, or math (STEM) field. Humanities and social science electives are selected from courses approved by the university which satisfy the University **General Education Curriculum and the Arkansas State Minimum Core requirements**.

~~general education requirement:~~

Students are required to complete 40 hours of upper division courses (3000-4000 level). It is recommended that students consult with their adviser when making course selections.

~~Lists of approved electives are on file in the department office.~~ **Civil Engineering Design Electives**

Students must complete two of the following four CVEG design project electives: [CVEG 4812](#) Environmental Design Project, [CVEG 4822](#) Geotechnical Design Project, [CVEG 4832](#) Structural Design Project, and [CVEG 4842](#) Transportation Design Project. Each design project elective is associated with a specific design-oriented course. The associated course must be taken at the same time as the design project elective. The associated courses may be taken alone but the design electives cannot.

8-Semester Plan

Civil Engineering B.S.C.E.

Eight-Semester Degree Program

The Civil Engineering B.S.C.E. program is eligible for freshman students who want to participate in an Eight-Semester Degree Program. See the [Eight-Semester Degree Policy](#) for details of the program.

The following section contains the list of courses required for the Bachelor of Science in Civil Engineering degree and a suggested sequence. Not all courses are offered every semester, so students who deviate from the suggested sequence must pay careful attention to course scheduling and course prerequisites.

See the list of [state minimum university core](#) courses available for engineering students.

	Units	
	Fall	Spring
First Year		
MATH 2554 Calculus I (ACTS Equivalency = MATH 2405) (Satisfies General Education Outcome 2.1)	1	4
PHYS 2054 University Physics I (ACTS Equivalency = PHYS 2034) (Satisfies General Education Outcome 3.4)		4
GNEG 1111 Introduction to Engineering I		1
CHEM 1103 University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture)		3
ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013) (Satisfies General Education Outcome 1.1)		3
MATH 2564 Calculus II (ACTS Equivalency = MATH 2505)		4
GNEG 1121 Introduction to Engineering II		1
Freshman Science Elective		4
Freshman Science Elective Lab		0
ENGL 1023 Composition II (ACTS Equivalency = ENGL 1023)	-	3
ENGL 1033 Technical Composition II (ACTS Equivalency = ENGL 1023) (Satisfies General Education Outcome 1.2)		3
Select one of the following to satisfy General Education Outcome 4.2:		3
PLSC 2003 American National Government (ACTS Equivalency = PLSC 2003)		
HIST 2003 History of the American People to 1877 (ACTS Equivalency = HIST 2113)		
HIST 2013 History of the American People, 1877 to Present (ACTS Equivalency = HIST 2123)		
Year Total:	15	15
Second Year		
		Units
		FallSpring
MATH 2574 Calculus III (ACTS Equivalency = MATH 2603)		4
CVEG 2013 Civil Engineering Mechanics I		3
CVEG 2002 Introduction to Civil Engineering Plans and CADD		2
CVEG 2053 Surveying Systems		4
& CVEG 2051L Surveying Systems Laboratory		

Fine Arts Elective (from University/State Core list)	3	-
Fine Arts Elective (Select a course to satisfy General Education Outcome 3.1)2	3	
<u>MATH 2584</u> Elementary Differential Equations		4
<u>CVEG 2023</u> Civil Engineering Mechanics II		3
<u>CVEG 2113</u> Structural Materials		3
<u>INEG 2313</u> Applied Probability and Statistics for Engineers I		3
<u>GEOS 1113</u> Physical Geology (ACTS Equivalency = GEOL 1114 Lecture) & <u>GEOS 1111L</u> Physical Geology Laboratory (ACTS Equivalency = GEOL 1114 Lab)		4
Year Total:		16 17
Third Year		Units
		FallSpring
<u>INEG 2413</u> Engineering Economic Analysis	3	
<u>CVEG 3303</u> Structural Analysis	3	
<u>CVEG 3213</u> Hydraulics	3	
STEM Elective	3	
<u>CVEG 3413</u> Transportation Systems Engineering	3	
<u>CVEG 2851</u> Engineering Professional Practice Issues	1	
<u>CVEG 4303</u> Reinforced Concrete Design I		3
<u>CVEG 3243</u> Environmental Engineering		3
<u>CVEG 3132</u> Soil Mechanics		3
& <u>CVEG 3131L</u> Soil Mechanics Laboratory		
<u>CVEG 3223</u> Hydrology		3
Social Science Elective (from University/State Core list)	-	3
Social Sciences Elective (select one course to satisfy General Education Outcomes 3.3 and 4.1)3	3	
Year Total:		16 15
Fourth Year		Units
		FallSpring
Civil Engineering Elective4	3	
Civil Engineering Design Elective (Satisfies General Education Outcome 6.1)	2	
<u>CVEG 4143</u> Foundation Engineering	3	
<u>CVEG 4423</u> Transportation Infrastructure	3	
<u>CVEG 4890</u> Fundamentals of Engineering Seminar	0	
Humanities Elective (from University/State Core List)	3	-
Social Science Elective (from University/State Core list)	3	-
Humanities Elective (select one course to satisfy General Education Outcomes 3.2 and 5.1) 5	3	
Social Sciences Elective (choose one approved course)6	3	
<u>CVEG 4513</u> Construction Management		3
Civil Engineering Design Elective (Satisfies General Education Outcome 6.1)		2
<u>CVEG 4243</u> Environmental Engineering Design		3

~~CVELG 4243~~ Environmental Engineering Design

Civil Engineering Electives 4

~~Social Science Elective (from University/State Core List)~~

Social Sciences Elective (choose one approved course) 6

Year Total:

3

6

- 3

3

17 17

Total Units in Sequence:

128

1 Students have demonstrated successful completion of the learning indicators identified for learning outcome 2.1, by meeting the prerequisites for [MATH 2554](#).

2 The Fine Arts Elective courses which satisfy General Education Outcome 3.1 include: [ARCH 1003](#), [ARHS 1003](#), [COMM 1003](#), [DANC 1003](#), [LARC 1003](#), [MLIT 1003](#), [MLIT 1003H](#), [MLIT 1013](#), [MLIT 1013H](#), [MLIT 1333](#), [THTR 1003](#), [THTR 1013](#), or [THTR 1013H](#).

3 The Social Sciences Elective courses which satisfy General Education Outcomes 3.3 and 4.1 include: [ANTH 1023](#), [COMM 1023](#), [HDFS 1403](#), [HDFS 2413](#), [HIST 1113](#), [HIST 1123](#), [HIST 2093](#), [HUMN 1114H](#), [HUMN 2114H](#), [INST 2013](#), [INST 2813](#), [INST 2813H](#), [PLSC 2013](#), [PLSC 2813](#), [PLSC 2813H](#), [RESM 2853](#), [SOCI 2013](#), [SOCI 2013H](#), or [SOCI 2033](#).

4 See the elective list among the program requirements.

5 The Humanities Elective courses which satisfy General Education Outcomes 3.2 and 5.1 include: [CLST 1003](#), [CLST 1003H](#), [CLST 1013](#), [HUMN 1124H](#), [PHIL 2003](#), [PHIL 2003C](#), [PHIL 2003H](#), [PHIL 2103](#), or [PHIL 2103C](#).

6 The Social Sciences Elective courses which satisfy General Education Outcome 3.3 include: [AGEC 1103](#), [AGEC 2103](#), [ANTH 1023](#), [COMM 1023](#), [ECON 2013](#), [ECON 2023](#), [ECON 2143](#), [EDST 2003](#), [HDFS 1403](#), [HDFS 2413](#), [HDFS 2603](#), [HIST 1113](#), [HIST 1113H](#), [HIST 1123](#), [HIST 1123H](#), [HIST 2003](#), [HIST 2013](#), [HIST 2093](#), [HUMN 1114H](#), [HUMN 2114H](#), [INST 2013](#), [INST 2813](#), [INST 2813H](#), [PLSC 2003](#), [PLSC 2013](#), [PLSC 2203](#), [PLSC 2813](#), [PLSC 2813H](#), [PSYC 2003](#), [RESM 2853](#), [SOCI 2013](#), [SOCI 2013H](#), [SOCI 2033](#). Note, courses cannot be counted twice in degree requirements.

Are Similar Programs available in the area?

No

Estimated Student Demand for Program **300** ~~260~~

Scheduled Program 2021

Review Date

Program Goals and Objectives

Program Goals and Objectives

The objective of the civil engineering program is to produce graduates who are prepared to pursue: (a) careers in the broad field of civil engineering; (b) licensure as a Professional Engineer; (c) advanced education.

Learning Outcomes

Learning Outcomes

1. Identify, formulate, ~~a) Apply knowledge of mathematics and science to~~ solve **complex** engineering problems by applying principles of engineering, science, and mathematics ~~problems:~~
 2. **apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, societal, environmental, and economic factors** ~~b) Design and conduct experiments, and analyze and evaluate the resulting data:~~
 3. **communicate effectively with a range of audiences** ~~c) Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and constructability:~~
 4. **recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts** ~~d) Function effectively as a member of a multidisciplinary team:~~
 5. **function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives** ~~e) Identify, formulate, and solve engineering problems:~~
 6. **develop and conduct appropriate experiments, analyze and interpret data, and use engineering judgment to draw conclusions** ~~f) Identify key elements of professional ethics; discuss the importance of professional licensure:~~
 7. **acquire and apply new knowledge as needed, using appropriate learning strategies** ~~g) Organize and deliver effective communications:~~
- ~~h) Explain possible impacts of engineering solutions on the economy, environment, political landscape, and society:~~
- ~~i) Discuss the need for life-long learning, and demonstrate the ability to learn through independent study:~~
- ~~j) Explain the impact of contemporary issues on the identification, formulation, and solution of engineering problems:~~
- ~~k) Apply relevant knowledge, techniques, skills, and modern engineering tools to address engineering problems:~~

Description and justification of the request

Description of specific change	Justification for this change
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Description of specific change	Justification for this change
<p>1. Specify allowable elective courses in the arts, humanities, and social sciences so that all requirements related to both the UA General Education Curriculum and the Arkansas State Minimum Core are met.</p> <p>2. Revise program learning outcomes to reflect those adopted by the program faculty, to comply with external (ABET) accreditation requirements - which underwent major revision for the 2019-20 academic year.</p>	<p>1. The University of Arkansas is implementing a new General Education Curriculum beginning with the 2020-21 academic year; this new General Education Curriculum contains a series of learning outcomes, which are satisfied by approved courses (or sequences of courses). The change to the listing(s) of allowable elective courses in the arts, humanities, and social sciences provides each student the ability to meet all General Education learning outcomes - while continuing to satisfy Arkansas State Minimum Core requirements.</p> <p>2. The external accreditation of this program is provided by ABET. Program learning outcomes required in the ABET criteria underwent significant change in 2019. The new CVEG program learning outcomes reflect the revised ABET criteria.</p>

Upload attachments

Reviewer Comments

Norman Dennis (ndennis) (04/23/20 12:47 pm): Rollback: Can you annotate next to specific courses which Gen Ed outcome it satisfies, e.g. ENGL 1013, Gen Ed 1.1. Based on previous comments by Alice it seems to be better to make a statement like "Choose a social science elective that meets Gen Ed outcomes 3.2 and 5.1" with a footnote to a statement outside the eight semester plan showing the list of courses that currently meet that requirement. This would be in lieu of listing them in the eight semester plane. Theoretically this would prevent us from making a major program change if the list changes.

Alice Griffin (agriffin) (05/08/20 1:40 pm): Added statement to program requirements regarding the 40 hour rule with permission from the college dean's office.

Charlie Alison (calison) (06/02/20 9:16 am): Updated "university core" and link to "state minimum core"

Manuel Rossetti (rossetti) (08/24/20 3:08 pm): Rollback: update footnotes

Alice Griffin (agriffin) (08/24/20 4:56 pm): Revised footnotes to include a clearer statement for learning outcome 2.1 with approval from Gen Ed and Core Curriculum Committee Chair. As a result, renumbered each footnote. Also inserted into footnotes the additional courses

approved later in the spring. Renamed Social Science to Social Sciences to match domain area in State Minimum Core.